



TAB C

1997 DEMONSTRATIONS OF THE BETTER HEARING INC CELL-PHONE COMPATIBLE HEARING AIDS (partial list)

DAY	DATE	PERSON/ORGANIZATION
FRIDAY	JUNE 20	DAVID WOODBURY, HEARING INDUSTRIES ASSOCIATION
THURS.	JUNE 26	JUDY MC CARRY/OFFICE OF REP. FRANK WOLF (VA.)
THURS.	JUNE 26	MICHELLE HARTLOVE, ACTG EXECUTIVE DIRECTOR BETTER HEARING INSTITUTE 703.642.0580
FRIDAY	JUNE 27	DAVID KIRKWOOD, EDITOR "THE HEARING JOURNAL"
MONDAY	JULY 7	ROBERTA JEANQUART/OFFICE OF REP MARCI KAPTOR (OHIO)/ RAYBURN BUILDING
MONDAY	JULY 7	BECKY/OFFICE OF REP. ROSA DE LAURO (CONN)/CANNON BUILDING
TUESDAY	JULY 8	ANN RUST/OFFICE OF REP. TOM DAVIS III (VA)
WED.	JULY 9	JOHN VERSTEEG, ESQ. /VENTURE CAPITALIST
MONDAY	JULY 14	DAN HANLEY/OFFICE SENATOR JOHN WARNER (VA)/RICHMOND VA OFFICE
TUESDAY	JULY 15	JOEL MYNDERS/HEARING AID SPECIALIST/INDUSTRY EXPERT/WEST CHESTER, PA.
FRIDAY	JULY 18	BILL BATES/OFFICE OF REP ESCHOO (WA).
MONDAY	JULY 21	BETH HALL/OFFICE OF REP BARTON (TX)
THURS.	SEPT. 4	BRENDA BATTAT & DONNA SORKIN/HQ SELF HELP FOR THE HARD OF HEARING (SHHH)/BETHESDA, MD.
	SEPT	DAVID CROCKER CO-PRESIDENT SHHH NORTHERN VIRGINIA CHAPTER CHAPTER MEETING
	OCTOBER	DR JUDY HARKINS/GALLAUDET UNIVERSITY/ WASHINGTON DC
	OCTOBER	AL KING/ BIOCOUSTRICS INC., /MD
	DEC	ARTHUR MIZELL/BOARD OF DIRECTORS NORTHERN VIRGINIA CENTER FOR THE DEAF AND HARD OF HEARING





TAB D

WASHINGTON POST ARTICLE
December 1997

Better Hearing Inc.'s First Aid

The Device Lets a Wearer Speak on a Cell Phone

By Beth Berselli

Washington Post Staff Writer

If Paula Gnecco makes it big-time as an inventor-turned-businesswoman, she'll have her mother to thank.

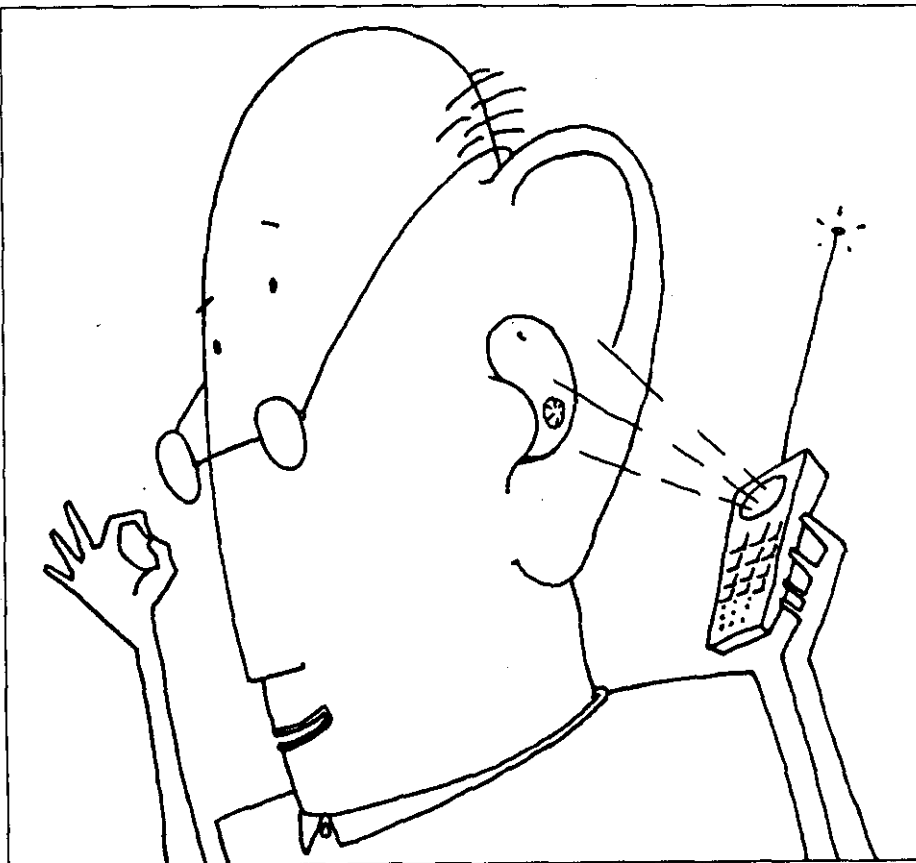
Back in 1992, Gnecco watched as her mother, Lillian, tried to use a cellular phone. Lillian wanted to call her husband and remind him to take his medication.

But she couldn't make the call. The problem was that Lillian wore a hearing aid, and as the 7 million Americans who use hearing devices know, the strong signals of wireless phones often interfere with the aids.

"All she'd hear was this loud buzz," Gnecco remembered.

Gnecco, a 49-year-old engineer married to another engineer, viewed her mother's plight as a personal challenge. "I wanted my mom to be able to use a cell phone," Gnecco said. That night she went home and told her husband, Lou, of the problem. His response: "No problem, we can fix this. Nothing to it."

Five long years later, the Gneccos have finally hit on a solution to the compatibility problem, and they've got a patent to prove it. The Herndon inventors have developed a hearing aid that works with both analog and digital cellular phones. Their company, Bet-



BY ALEX CAMERON FOR THE WASHINGTON POST

ter Hearing Inc., has just started selling the devices, in the \$600 to \$900 range.

"Electromagnetic interference" is the term scientists use to describe what often

happens when a hearing-aid user attempts to use a wireless phone. Simply put, the radio signals produced by the cell phone leak into

See **HEARING AID**, page 15

DIGITAL FLUBS

A band of hackers has been roused from the computers at two Florida facilities, the Knight Ridder news service reported.

Suspicion was aroused by a surge of computer traffic into the National High Magnetic Field Laboratory in Tallahassee. After checking into the situation, technicians found large numbers of files and programs that no one knew about.

Investigators found that hackers had used the computers at the lab and the nearby Center for Educational Technology of Florida State University to store programs used for breaking into other computers as well as to distribute pirated copies of

BYTES

GETTING BANKS READY FOR 2000

Regulators have taken their first enforcement action against banks for falling behind in efforts to deal with the Year 2000 computer problem, the Associated Press reported. In a joint action last month by federal and Georgia regulatory agencies,



four Georgia banks were ordered to get the necessary computer hardware and software in place in time for the arrival of the new century.

Without preparation, some computers will fail in the new millennium because they won't be able to recognize dates after 1999. The banks were ordered to make periodic reports on their progress. The action was taken by the Federal Reserve Board, which regulates bank holding companies, the Federal Deposit Insurance Corp. and the Georgia

STAYING WITH MCI

For years, one of MCI Communications Corp.'s messages to employees has been this: Don't think you'll stay here for your whole life. The company contended that turnover and infusion of new blood was vital to its health.

Now, with WorldCom Inc. poised to buy the company, it's paying some of them to stay. MCI has set aside \$420 million to fund "retention bonuses," the company said in filings with the Securities and Exchange Commission, according to Bloomberg Business News. The goal is to hang on to strong performers who might be thinking of jumping ship because of the uncertainty caused by a merger.

The money won't be spread equally among the ranks of MCI's 55,000 employees: As much as \$170 million of the pool will go to senior executives selected by MCI's compensation committee, subject to the approval of certain details by

A Hearing Device Designed For Use With Cell Phones

HEARING AID, from page 12

the circuitry of the hearing aid and jam it. The user is left with either a buzzing or humming sound or a so-called "quieting" noise that means the hearing aid is not amplifying.

Experts say the interference is more severe with digital phones than with analog ones. Digital phones can affect hearing aids as far as 10 feet away, bothering not only the user but

The Gneccos say their unique backgrounds helped them succeed when larger companies with more resources couldn't.

other hearing-impaired people who are nearby, the Gneccos said.

Hank Grant, director of the University of Oklahoma's Center for the Study of Wireless Electromagnetic Compatibility, said that not every hearing aid malfunctions with every cell phone, digital or not. It's a case-by-case occurrence, he said. Some hearing aids can operate with some wireless phones—it all depends on such variables as the strength of the hearing aid or phone.

The wireless and hearing-aid industries have been working on this problem for more than two years with hearing-impaired groups and the Federal Communications Commission.

Industry analysts estimate there are now about 45 million cell phone users worldwide, and that number may grow to half a billion by 2002. The Gneccos say that leaves them a great opportunity in the country's \$1.2 billion hearing-aid industry. And it's an industry with room for growth, because fewer than 30 percent of the 25 million Americans with hearing loss wear aids.

With public figures like President Clinton starting to use hearing aids, the devices' popularity is likely to grow, the Gneccos predict.

"We have the solution," said Lou Gnecco, a 52-year-old former NASA engineer. "We've got the technology pretty well locked up." In the next two years, the Gneccos hope to gain at least a 1 percent share of the hearing-aid market.

Unfortunately, the person who inspired their efforts never got to try their product. Paula's mother passed away before the Gneccos' hearing aid was finished.

David C. Crocker, a hearing-impaired tax examiner who lives in Arlington, recently tried their hearing aid and was thrilled with the results. "I could actually hear on the digital cell phone," he said.

"It's kind of frustrating with this whole telecommunications revolution," Crocker said. "The technology is not accessible to us simply because it won't work with our hearing aids."

The Gneccos say their unique backgrounds helped them succeed when larger companies with more resources couldn't. Paula has worked for various defense contractors, including Raythe-



BY FRANK JOHNSTON—THE WASHINGTON POST

Paula and Lou Gnecco are Herndon inventors who have developed a hearing aid that works with both analog and digital cellular phones. Their company, Better Hearing Inc., has started selling the devices in the \$600 to \$900 price range.

on Co., while Lou was a longtime government employee.

In 1985, Lou started his own small defense contracting firm, which is still in business today, primarily doing top-secret work for the National Security Agency. In 1992, foreseeing decreased defense spending, the Gneccos decided to branch out into the hearing-aid business. Both got licenses as hearing aid specialists, and Lou Gnecco is also a certified electromagnetic compatibility engineer. They incorporated Better Hearing Inc. that year and started

selling hearing aids from other manufacturers.

Developing their aid was tricky, Lou Gnecco said, because of the need to keep the hearing aid small (it fits behind the ear rather than going inside it) and because of the close proximity between the aid and the radio transmitter in the cell phone.

The Gneccos spent almost \$1 million of their own money to develop their product. They said they aren't looking to license their technology to a major manufacturer, as many inventors

do, but instead want to build their own business in Virginia.

"We want to become a major employer and be part of the Northern Virginia technology boom," Paula Gnecco said.

The main message the Gneccos say they want to leave with the hearing-impaired community is that they don't have to put up with a low-tech life.

"The hearing-impaired already have to deal with enough limits," Paula Gnecco said. In this case, she said, "there doesn't have to be one." ■



TAB E

**TRADE PUBLICATION ARTICLES
OCTOBER – DECEMBER 1997**

HJ REPORT Aug. 97

FROM:

"THE HEARING JOURNAL"
TRADE MAGAZINE
DAVE KIRKWOOD, Ed.
(212) 595-8925

2124 Broadway #108
NY NY 10023

the same day that Hearing Industries Association (HIA) members were on Capitol Hill lobbying for FDA reform. It deals only with medical devices, including hearing aids. The Senate bill, S 830, which was introduced in June by James Jeffords (R-VT), contains a far more comprehensive package of FDA reforms, including some that are controversial. One of these would require pre-market review of medical device applications. A number of prominent Democrats, including Sen. Edward Kennedy of Massachusetts, oppose this and, if it remains in the bill, could lead to its defeat.

Favorable factors

Despite congressional differences over some specifics of FDA reform proposals, David Woodbury, HIA's director of government relations, cited at least two reasons why FDA reform has a better chance of passage this year than last.

First, unlike last year when then-FDA Commissioner David Kessler, MD vocally opposed any reforms imposed on his agency from outside, the commissionerless FDA has been quiet so far this year. Secondly, both parties in Congress and the White House want to see extension of the Prescription Drug User Fee Act, which is due to expire on October 1. PDUFA, which requires drug manufacturers to pay user fees to FDA for review of new drugs, is part of S 830 and is expected to be added to the House bill as well. The broad support for PDUFA may help pull other FDA reforms along with it.

Woodbury expects that there will be changes made to the House bill this summer. Then, following this month's congressional recess, the bill is likely to go to a House-Senate conference committee and, possibly, be enacted by the end of September.

Phonic Ear of Petaluma, CA, maker of assistive listening technology since 1968, announced June 18 that its stockholders had accepted an offer to sell 100% of their shares to William Demant Holding A/S, a publicly traded company on the Copenhagen Stock Exchange. The \$34.5 million transaction will make Phonic Ear a sister company to hearing aid manufacturers Oticon and Bernafon and diagnostic equipment manufacturers Maico and RhinoMetrics, which already are owned by Demant.

Phonic Ear, known for its FM and infrared wireless hearing assistance products, has had ties with Oticon since 1993, when it entered a marketing alliance with the company. Under this agreement, Phonic Ear became exclusive distributor of Oticon products in Canada and Oticon distributed Phonic Ear products in selected overseas markets.

"This is a very positive decision for us," said James Mulford, president of Phonic Ear. "We've been very successful marketing our products to schools and other institutions. But joining William Demant gives us immediate access to the consumer market." For Demant, acquiring Phonic Ear is a move toward implementing the company's previously stated plans to diversify into new wireless communications devices.

Mulford stressed that the connection with Oticon would not change Phonic Ear's commitment to universally compatible products. "We've always insisted that our systems work with all major hearing aid brands, and we'll continue that policy," said Mulford.

Under the new ownership, Phonic Ear spokesman John Merline said that the company will continue to operate as usual, Merline told the *Journal*.

INVENTORS CLAIM INTERFERENCE-FREE HEARING AID

A Virginia couple were awarded a patent June 17 for certain electromagnetic compatibility techniques that they have invented for use in what they contend is "the first hearing aid that is compatible with both analog and digital cellular phones." Louis and Paula Gnecco, owners of Better Hearing, Inc. of Herndon, VA, are awaiting clearance from the Food and Drug Administration (they filed with FDA in April) to market their product, which they hope to make available to consumers later this year.

If their claims are borne out—and unscientific tests by several people in the hearing industry, including the editor of *The Hearing Journal*, suggest that they will be—the Gneccos have apparently solved a problem that major hearing aid manufacturers and makers of telephones have been struggling with for several years. The couple became interested in the cell phone-hearing aid incompatibility issue about 5 years ago when Paula's mother, now deceased, was unable to use her cell phone while wearing hearing aids. When they looked for a solution, Louis said, "we quickly discovered that this is an extremely difficult problem. There are no 25-cent fixes."

The Gneccos brought an unusual combination of experience and knowledge to their quest. Both are electronics en-

gineers; she specializes in signal processing and he in electromagnetic compatibility issues. Before entering the hearing care field in 1992—they are licensed hearing instrument specialists, as well as being start-up hearing aid manufacturers—they had established, and still run, a successful Defense Department contracting firm. They also have their own electromagnetic compatibility testing laboratory.

Using "a combination of measures," the Gneccos recently unveiled an instrument which, their June 17 press release said, "allows hearing aid users to freely avail themselves of personal communications technology. Cell phone users can now talk anywhere, no longer producing the audible, irritating noise blanket that currently renders hearing aids useless and annoys bystanders." Louis Gnecco said that the instrument will be sold with a money-back guarantee if, in the buyer's opinion, it is not 100% compatible with a cellular telephone.

While their first hearing aid is a linear behind-the-ear instrument, the Gneccos say they will soon introduce other styles and types, including compression and programmable instruments. At least for now, the couple say they will produce and sell their own products rather than sell or lease the technology to an established manufacturer. However, they said they do not rule out talking to other companies.

■ HEARING AIDS EXEMPTED FROM "LEMON LAWS"

Hearing industry groups, including the American Academy of Audiology, the International Hearing Society, and the American Speech-Language Association, several states have exempted hearing aids from their so-called "lemon laws."

As reported here in April, the hearing industry has been concerned about the recent proliferation of state legislation that permits consumers to return assistive devices for full credit if they need more than a specified number of repairs. The industry argues that such legislation is unnecessary in the case of hearing aids, which are already closely regulated and come with a manufacturer's warranty typically ranging from 1 to 3 years. Worse, if such laws regard as repairs the normal adjustments that are a common part of a successful fitting, they could enable consumers to demand their money back on perfectly well-functioning hearing aids before the dispenser and manufacturer have had sufficient opportunity to fine-tune the fitting.

Therefore, the industry has been heartened by certain recent actions. Florida, North Dakota, and Connecticut have all passed device laws that specifically exempt hearing aids from their provisions, and which the industry hopes will serve as precedents for other states. In addition, Oregon revised a pending bill so as to exempt hearing aids, and Missouri and Minnesota amended their existing laws so that they no are longer onerous to hearing care providers.

"I think we've turned the corner on this," said HIA's Woodbury, who credited strong support from IHS executive director Robin Holm and AAA president Barry Freeman as a key factor in the success of the lobbying effort.

WORKSHOP ON HEARING AID BENEFIT

Rarely, if ever, have as many hearing health professionals joined forces on anything as have aggregated in a workshop on hearing aids to be held on Thursday and Friday, September 25–26 at the American Physical Society in College Park, MD. The topic of "Defining and measuring the benefit of hearing assistive listening devices," is obviously a concern of hearing professionals (and their patients), who will explain why the Acoustical Society of America, American Academy of Audiology, American Academy of Otolaryngology—Head and Neck Surgery, American Speech-Language-Hearing Association, Department of Veterans Affairs, Hearing Industries Association, House of Representatives, International Hearing Society, National Association of the Deaf and other Communication Disorders, and Help for Hard of Hearing People have all signed on as sponsors.

The chair of the workshop is Sigfrid Soli, director of hearing aid research at the House Ear Institute in Los Angeles. Soli told the *Journal* that the American Physical Society approached him about organizing a workshop on a hearing aid-related topic that would address scientific, economic, and public interest issues. "Defining hearing aid benefit," he explained, "is an issue that comes up wherever you go, but it has not received this kind of attention. To my knowledge, there has never been a workshop just focused on the issue of hearing aid benefit."

The purpose of the September meeting, Soli said, "is to get together experts from each of the hearing aid communities to define what are the most important issues related to hearing aid benefit and what needs to be established and documented to benefit, especially in the hearing aid care environment."

The cost of registration is \$100. For further information about the workshop, which is open to all interested parties, contact the House Ear Institute, attention Lynton-Doyle, 2100 West 3rd Street, (213) 413-0959, fax (213) 413-0959, e-mail workshop@HEI.org, or the American Physical Society of America, attention Elaine Moravcsik, 11797 Woodside Boulevard, Woodbury, NY 11797, (516) 576-2377, fax (516) 576-2377, e-mail elaine@AIP.org.

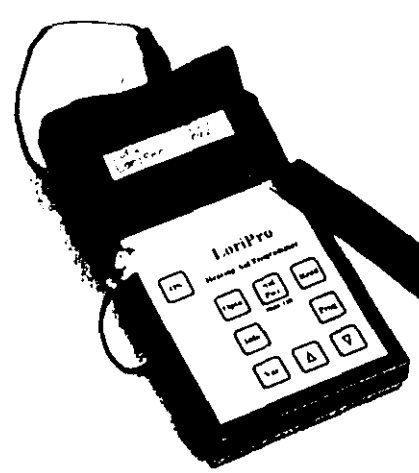
■ WHAT'S NEXT, FIELD AND STREAM?

The media's fascination with digital sound processing aids shows no sign of abating. The latest to discover the topic was *Popular Mechanics*, which in its September issue ran a 2-page article explaining the technology behind Oticon's DSP product. (Widex was also featured.)

While *Popular Mechanics* may not seem like the best place to get publicity about hearing aids, you might be surprised. Dispensing audiologist Jim Rippey of Little Rock told the *Journal* that as soon as the article appeared, he got a slew of phone calls, and three people made appointments to see him.

HJ-OCT 97

Hand-held programmer from Lori



provide a key to many opportunities." Approximately 10 million South Africans are extremely hard of hearing. Roughly 1/3 of this group is unemployed and most cannot hear. Siemens became involved with the children of South Africa through a project of the Chris Hani Foundation in Soweto.

Circle 212 on Reader Service Card

LONG LAKE, MN—Lori Medical Labs is now offering a new programmable hearing instrument programmer. Connecting directly to the faceplate, the portable hand-held programmer allows the dispenser to change the settings while the patient is wearing the instrument. It facilitates programming of low and high gain, CO frequency, and TK setting of the 2 ch.

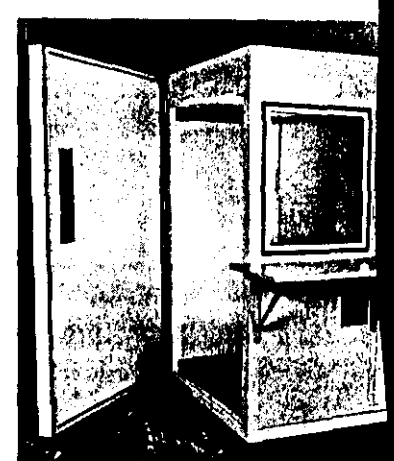
This unit can be used as a stand-alone programmer or with a PC, in conjunction with software being developed by the company. Free hand-held programmers are available to dispensers.

Circle 211 on Reader Service Card

Siemens offers hope to South African children

MUNICH—South African President Nelson Mandela recently accepted 200 hearing aids donated by Siemens Audiologische Technik for children whose families are unable to afford hearing aids. Mandela, who also wears hearing aids, said, "A hearing aid

IAC introduces new testing room



NEW YORK—Industrial Acoustics Company is now offering a portable, compact audiometric testing room: the 250-LP

Sound Shelter. Part of IAC's "Mini" Series, the Sound Shelter provides calibrated acoustical environments to meet test, space, and budget requirements for audiologic and psychological examinations and research.

Sound Shelter has inside dimensions of 25" wide x 36" deep x 55" high. The fully assembled booth can be moved through a standard 32" wide door and the room takes up less than 9 sq. ft. of floor space; a 36" wide Noise-Lock® magnetic-seal door provides ready access. The entire unit weighs 650 lb.

Circle 215 on Reader Service Card

New hearing aid gets FDA clearance

HERNDON, VA—The FDA has cleared the L-1 hearing aid for sale, manufactured by Better Hearing Inc. According to the company, the L-1 is the first to be immune to interference from cellular phones, being "hardened" against this interference without compromising the quality of sound produced by the hearing aid or its function.

Phones using TDMA technology (Nokia 2190), CDMA technology (Qualcomm QCP-800), and analog technology (Motorola Platinum series 13011) can be used to place and receive calls with the L-1 aid. According to Better Hearing, the patented L-1 instrument enables hearing aid users to avail themselves of personal communications technology anywhere without interference from proximity to other cell phones, motion detectors, computers, and security systems.

The L-1 instruments represent the first of Better Hearing's family of solutions to the growing cell phone incompatibility

Q. Why was the K-AMP® hearing aid designed with a single channel?
Why not two or three channels?

CALL TOLL FREE: 888-FIG6-HLP

K-AMP® is a registered trademark of Etymotic Research

ETYMOTIC RESEARCH
 81 Martin Lane, Elk Grove Village, IL 60007
 (847) 228-0006 FAX(847) 228-6836

Circle 115 on Reader Service Card

WhistleSTOP®

IT WORKS!

Stops telephone feedback
 Snaps on standard phones
 Stops customer returns

For all hearing aid users.
WhistleSTOP® is durable and easy to clean

1-800-889-7371

Everett Assistive Resources Company
 P.O. Box 3353, Everett WA 98203

MADE IN U.S.A.
 Covered under one or more of the following U.S. patents:
 4,823,384; 4,805,878; 5,305,807; 5,311,401; other patents pending.

G **ROUND**
K **SQUARE**
T **TEL-EAR**
 For the hard-to-fit phone

Circle 116 on Reader Service Card

Interacoustics

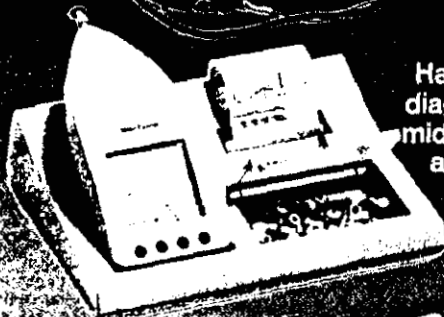
supplies a complete range of 15 different audiometers and middle ear analyzers



AC 40
Full featured
state of the
art clinical
audiometer



AZ26
Clinical
middle ear
analyzer



MT10
Handheld
diagnostic
middle ear
analyzer

AD226
Diagnostic
audiometer with
DSP technology



1-800-947-6334

International:
Interacoustics
Phone: +45 6371 3555
Fax: +45 6371 3522
e-mail: info@interacoustics.dk
Mail: Interacoustics,
DK-5610 Assens, Denmark



USA:
Interacoustics USA
Phone: 1-800-947-6334
Fax: 1-707-746-6374
e-mail: info@interacoustics.com
Mail: 4814 East Second St.
Benicia CA 94510, USA

www.interacoustics.dk
Circle 125 on Reader Service Card

issue. Other models are expected on the market by the fall.

Circle 214 on Reader Service Card

New products from BMT



NEW ORLEANS—
BMT Hearing Prod-
ucts has announced
the AuraVision head
mount video oto-
scope monitor. Use
of the monitor en-
ables the professional

to look in the patient's ear and at the monitor at the same time, rather than needing to look away to a monitor. This is safer for the patient as it eliminates inadvertent movement of the video probe against the canal wall. The monitor is most valuable during cerumen removal, as the professional is "in the ear" during the procedure. The AuraVision head mount monitor can be connected to any video otoscope.

Hearing aid dehumidifier



BMT has in-
troduced the
Aura-Dri hear-
ing aid dehu-
midifier with
features de-
signed to assist
patients with
dehumidifica-
tion and

recharging, and dispensers with making sales. Aura-Dri's high-impact plastic jar is filled with bright blue moisture-absorbent beads. These beads turn to pink as moisture from the hearing aids is absorbed, alerting patients with poor eyesight that it's time to recharge. Recharging can be done in either a microwave or conventional oven.

Circle 215 on Reader Service Card

Drake adds accessories to assistive listening system

FRANKLIN, OH—The RL Drake Company has added three new accessories to the AudioAccent™ product line: an earphone, an external magnetic mount antenna, and replacement foam covers.

A non-invasive, clip-on earphone is now available with the system. When used with the personal FM receiver, it provides high-power audio output. This addition is especially convenient for persons who are extremely hard of hearing or who find it difficult to use standard earbuds.

The new external magnetic mount antenna is designed for applications where the ALT1000 transmitter needs to be mounted in a rack. This addition is designed for portability and easy installation.

Replacement sanitary foam covers are now available in packages of 50. Replaceable earbud covers allow convenient maintenance of MR306 personal receivers.

Circle 216 on Reader Service Card

Hearing Aids and Cell Phones: American Ingenuity Alive and Well?

by Charles Mizell

NVRC Update has carried two articles about problems of hearing aid wearers using cellular phones. The July/August 1996 issue gave a general review of the problems and efforts being taken to solve them. In the June 1997 issue we reported on the May conference at Gallaudet entitled "Wireless Telephones and Hearing Aids: New Challenges for Audiology."

Now we are pleased to report that a solution may be forthcoming from an unexpected source - Better Hearing, Inc. of Herndon, Virginia. Louis T. Gnecco and his wife, Paula, established the company in 1992. Both are electronics engineers and licensed hearing aid specialists. Their work experience includes the fields of acoustics, signal processing, and electromagnetic compatibility. They also run a contracting firm, which has received several awards for work done for the Department of Defense. Their facilities include an industrial acoustics sound booth and an FCC-approved electromagnetic compatibility test laboratory.

The Gneccos have designed and patented a linear, behind-the-ear hearing aid which is said to work with a variety of cell phones, both analog and digital. The Food and Drug Administration (FDA) has approved it for sale in the U.S. They plan to build and sell it themselves and make it available to other dispensers to sell. There was no interference when I used this instrument, designated L-1, with a cellular phone. I could not, however, use the same cell phone when wearing my own hearing aid because of the interference. As I understand it, the linear amplification means that all input receives the same boost, whether the incoming sound is a soft or loud one. The L-1, then, may not be suitable for all.

However, the Gneccos have plans for increasingly sophisticated hearing

instruments. They have already designed and patented a second aid, called model C-1. This model has compression circuitry and appears to be usable with a wide variety of cell phones. For this listener the sound quality was much improved over the L-1. In late October the C-1 model also was approved for marketing in the United States. Neither the L-1 nor the C-1 has a T-coil. Programmable, k-amp, and power instruments are all in their plans for the future.

Exact prices for the instruments were not available at the time of my visit in mid-October. The Gneccos did say their hearing aids would be competitively priced.

It's too early to do much serious speculation as to the ultimate success of Better Hearing, Inc. The tasks ahead are formidable. After the inventing and patenting and tedious work of getting government approval to sell, the fabricating and marketing would appear to be huge undertakings indeed. The consumer of course will determine the final outcome.

The reader may recall that the June '97 article named many of the hearing aid manufacturers, wireless phone manufacturers, research organizations, and government agencies working to make the digital cell phone usable by the hearing aid wearer. It would be surprising if the Gneccos have solved the problem that all these organizations with their greater resources have not. On the other hand, we may be witnessing another remarkable result of the ingenuity and entrepreneurial spirit of the individual American. We wish Better Hearing, Inc. success in its very worthwhile endeavor.

Should you wish to visit, make an appointment first. The company address is: 112 Elden St., Herndon, Va. 20170-4809, (703) 709-7021. email: info@better-hearing.com Internet home page: <http://www.better-hearing.com>



TAB F

ADDITIONAL INFORMATION AVAILABLE VIA INTERNET

For quick access to these sites, go to

<http://www.tempest-inc.com/links.htm>

CHAIRMAN OF HIMPP: See Bio of Niels Jacobsen at:
http://www.demant.com/the_board.htm

MEMBERS OF HIMPP See page 45 of this site:
<http://216.239.51.100/search?q=cache:IC15tcw8WB0J:www.cbs.dk/departments/ivs/wp/cis-nois.pdf+himpp&hl=en&ie=UTF-8>

FIRST PATENT: (June 1997,) see this web site:
<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/search-bool.html&r=3&f=G&l=50&co1=AND&d=ptxt&s1=gnecco.INZZ.&OS=IN/gnecco&RS=IN/gnecco>

SECOND PATENT
<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/search-bool.html&r=2&f=G&l=50&co1=AND&d=ptxt&s1=gnecco.INZZ.&OS=IN/gnecco&RS=IN/gnecco>

THIRD PATENT
<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/search-bool.html&r=1&f=G&l=50&co1=AND&d=ptxt&s1=gnecco.INZZ.&OS=IN/gnecco&RS=IN/gnecco>

REQUEST FOR REEXAMINATION
<http://www.uspto.gov/go/og/2000/week10/patrequ.htm>

WASHINGTON POST ARTICLE, DECEMBER 1, 1997:
[http://nl.newsbank.com/nl-search/we/Archives?p_product=WP&p_theme=wpost&p_action=search&p_maxdocs=200&s_dispstring=allfields\(gnecco\)%20AND%20date\(01/01/1997%20to%2012/31/1999\)&p_field_date-0=YMD_date&p_params_date-0=date:B,E&p_text_date-0=01/01/1997%20to%2012/31/1999&p_field_advanced-0=&p_text_advanced-0=\("gnecco"\)&p_perpage=10&p_sort=YMD_date:D&xcal_useweights=no](http://nl.newsbank.com/nl-search/we/Archives?p_product=WP&p_theme=wpost&p_action=search&p_maxdocs=200&s_dispstring=allfields(gnecco)%20AND%20date(01/01/1997%20to%2012/31/1999)&p_field_date-0=YMD_date&p_params_date-0=date:B,E&p_text_date-0=01/01/1997%20to%2012/31/1999&p_field_advanced-0=&p_text_advanced-0=("gnecco")&p_perpage=10&p_sort=YMD_date:D&xcal_useweights=no)



TAB G

RE-EXAMINATION CERTIFICATE



US005640457C1

(12) **REEXAMINATION CERTIFICATE** (4833rd)**United States Patent**
Gnecco et al.(10) Number: **US 5,640,457 C1**(45) Certificate Issued: **Aug. 19, 2003**(54) **ELECTROMAGNETICALLY SHIELDED
HEARING AID****OTHER PUBLICATIONS**(76) Inventors: **Louis Thomas Gnecco**, 112-F Elden St., Herndon, VA (US) 22070; **Paula Sharyn Gnecco**, 112-F Elden St., Herndon, VA (US) 22070

EMC for Product Designers, Butterworth-Heinemann Ltd. 1992, pp. 4-5, 10-11, 122-139, 147-150, 155-158, 166-169, 182-185, 194-195, 199-212.

Reexamination Request:

No. 90/005,608, Jan. 7, 2000

Interference to Hearing Aids by the new Digital Mobile Telephone System, Global System for Mobile (GSM) Communications Standard, Joyner et al, published by National Acoustic Laboratories, Mar. 30, 1993 ("Joyner et al").

"Oticontact" No. 13, Oct. 1993.

Reexamination Certificate for:Patent No.: **5,640,457**Issued: **Jun. 17, 1997**Appl. No.: **08/557,999**Filed: **Nov. 13, 1995***Primary Examiner*—Rexford Barnie

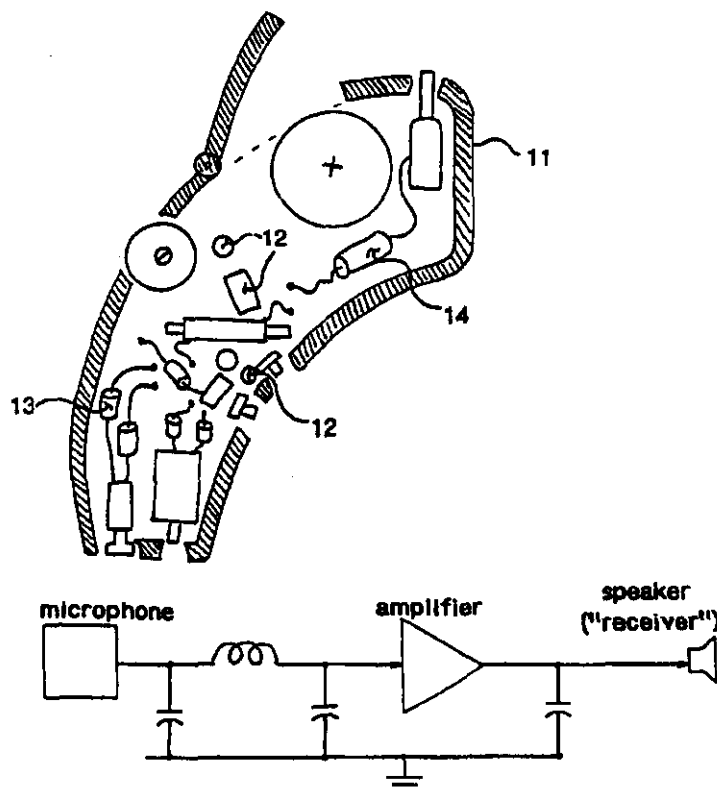
- (51) Int. Cl.⁷ **H04R 25/00**
 (52) U.S. Cl. **381/322; 174/35 R**
 (58) Field of Search **381/316, 321, 381/322, 324, 325, 326, 312, 313, 314, 317, 318, 93, 94.1, 911**

(57) **ABSTRACT**

A behind the ear, in the ear, all in the ear, in the canal, or completely in the canal hearing aid which is made resistant to electromagnetic interference produced by cellular telephones in the 800 MHz to 1000 MHz frequency range. The resultant hearing aid will allow hearing impaired people to take advantage of cellular telephones and other recently-developed personal communication devices while also using their hearing aids.

(56) **References Cited****U.S. PATENT DOCUMENTS**

5,708,720 A 1/1998 Meyer





TAB H

LIST OF CELL PHONE TEST REPORTS

TEST REPORTS SUBMITTED TO THE FDA.

All were prepared by. Paula S. Gnecco and Louis T. Gnecco

PAGE 1 OF 2 PAGES

Date	Title
Oct. 4, 1997	BETTER HEARING, INC. Test Procedure # 971004 <u>"Procedure for Electromagnetic Compatibility Testing of Hearing Aids Using Cellular Telephones"</u>
April 4, 1997	<u>"Results of Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model L-1 Hearing Aid."</u>
August 1, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model L-1 Hearing Aid serial numbers 001, 002, 003 using the following Cellular Telephones: Nokia 2190 (TDMA) Qualcomm QCP-800 (CDMA). Motorola Platinum Series Model 13011 (Analog)"</u>
August 1, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model C-1 Hearing Aid Serial Number 001 Using the Following Cellular Telephones: Nokia 2190 (TDMA) Qualcomm QCP-800 (CDMA). Motorola Platinum Series Model 13011 (Analog)"</u>
August 26, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model L-1 Hearing Aid Serial Number 002 Using the Following Cellular Telephones: Ericsson CH-2337 (TDMA) Motorola Micro Digital Lite (Analog)"</u>
August 26, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model C-1 Hearing Aid Serial Number 001 Using the Following Cellular Telephones: Ericsson CH-2337 (TDMA) Motorola Micro Digital Lite (Analog)"</u>
September 8, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model L-1 Hearing Aid Serial Number 003 Using the Following Cellular Telephones: Ericsson CA-318 (TDMA) Ericsson CF-388 (TDMA) "</u>

TEST REPORTS SUBMITTED TO THE FDA., Continued.
All were prepared by. Paula S. Gnecco and Louis T. Gnecco
PAGE 2 OF 2 PAGES

September 26, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model L-1 Hearing Aid Serial Number 003 Using the Following Cellular Telephones: Japan Radio Company (JRC) PTR-870 (Analog) "</u>
September 26, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model C-1 Hearing Aid Serial Number 001 Using the Following Cellular Telephones: Japan Radio Company (JRC) PTR-870 (Analog) "</u>
October 4, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model C-1 Hearing Aid Serial Number 001 Using the Following Cellular Telephones: OKI Telecom, Inc. (Libertyline) OP-1415 9(UM9057) (Analog) "</u>
October 4, 1997	<u>"Results of Cursory Electromagnetic Compatibility Tests Performed on the BETTER HEARING INC. Model L-1 Hearing Aid Serial Number 003 Using the Following Cellular Telephones: OKI Telecom, Inc. (Libertyline) OP-1415 9(UM9057) (Analog) "</u>



TAB I

FDA COMMITTEE LIST

BETTER HEARING, INC.

Dr. Lillian Yin, FDA: July 28, 1997:

112 ELDEN STREET.

ENCLOSURE 1.

LIST OF PARTICIPANTS:

MEETING HELD AT 9200 CORPORATE BLVD.
ROCKVILLE, MARYLAND 20850
JULY 24, 1997 2-4 PM

<u>Name</u>	<u>Title</u>	<u>Organization</u>
Mr. David Segerson	Deputy Division Chief	FDA/ODE/ENTB
Mr. Harry Sauberman	Head, ENT Branch	FDA ODE/DRAERD/ENTB
Ms. Teri Cygnarowicz	Case officer	FDA ENTB/ODE
Ms. Marlene Scopec	EMC Engineer	FDA OST/DPS/EPB
Mr. Byron Tart	Director, Advertising & Promotion Compliance	FDA OC/PAP
Mr. Steve Budabin	Compliance	FDA/OC/PAPS
Dr. Sid Jaffe	Medical Officer	FDA/ODE/ENT B
Mr. Ellsworth L. Sharpe	Engineer, Device Evaluation	FDA ODE/DRAERD/ENTB
Mr. Don Witters	Physicist/Engineer	FDA/OST/DPS/EPB
Mrs. Paula S. Gnecco	President	Better Hearing, Inc.
Mr. Louis T. Gnecco	Vice President	Better Hearing, Inc.

(301)
443-8879
x148



TAB J

APPROVAL TO MARKET LETTER

BETTER HEARING, INC.

112 ELDEN STREET.

HERNDON, VIRGINIA 20170-4809

(703) 709-7021 Fax: 709-9565

July 28, 1997

Ms. Lillian Yin, Ph.D. Director--Division of Reproductive, Abdominal, Ear
Nose and Throat, and Radiological Devices.

Office of Device Evaluation, Center For Devices and Radiological Health,
Food and Drug Administration

9200 Corporate Boulevard, Rockville, Maryland 20850 (301) 594-2080

Subject: **K971298**

Reference (a) Your letter of July 23

(b) Our meeting of July 24, attended by participants listed in Encl. 1.

(c) "Results of Electromagnetic Compatibility Tests Performed on the
BETTER HEARING, INC. Model L-1 Hearing Aid" Better Hearing Inc.:

April 4, 1997

Encl. 1: List of Participants

Dear Dr. Yin:

In accordance with Reference (a) and as discussed in Reference (b), it
is our understanding that we may now market our model L-1 hearing aid with
the following claim:

**"Cursory testing on the L-1 indicates that it is usable with a
variety of cell phones, including the following:**

Nokia 2190 TDMA Digital Cellular Phone

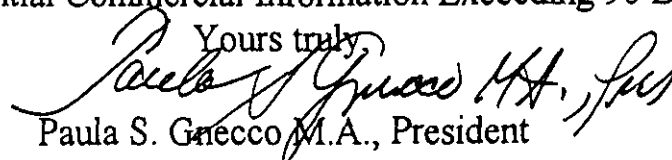
Qualcomm QCP-800 CDMA Digital Cellular Phone

Motorola Platinum Series 13011 Analog Cellular Phone"

At this meeting, we agreed to the following:

1. On an ongoing basis, we have agreed to provide you with test data on
regarding these and any other cell phones that we use to test our hearing aids.
2. We also agreed to make our test report, Reference (c), available to the
public on the internet. Accordingly, we no longer require that Ref. (c) be
treated as "Confidential Commercial Information Exceeding 90 Days."

Yours truly


Paula S. Gnecco M.A., President



TAB K

TYPICAL OFFER TO LICENSE PATENTS LETTER



BETTER HEARING, INC.

112 Elden Street Herndon, Virginia 20170

(703) 709-7021 *Our 10th anniversary: 1992-2002*

July 8, 2002

Mr. William Lankenau, President
Siemens Hearing Solutions, Inc. - U.S. Headquarters
PO Box 1397 Piscataway, New Jersey. 08855
Tel: (732) 562-6600 Fax: (732) 562-6696 Toll Free: 800-766-4500

References:

- (a): Your advertisements that appear at the following internet address:
<http://www.siemens-hearing.com/index.asp?pgID=0201010100>
and in: "The Hearing Journal" June 2001 Vol. 54 No. 6 , page 40
- (b) U.S. Patent # 5,640,457: "Electromagnetically Shielded Hearing Aid."
- (c) U.S. Patent # : 6,031,923 "Electromagnetically Shielded Hearing Aids"
- (d) U.S. Patents # 5,708,720 and 5,768,397 and 6,104,821

Dear Sir:

Reference (a) shows that you may be interested in the technology covered by References (b) and (c,) currently licensed to us. We have other patents pending, and other proprietary technology, in this field.

Our technology is available for outright sale or for sublicensing. We were the first company to successfully produce cell-phone compatible hearing aids. We obtained permission from the US Food and Drug Administration to advertise them as such.

Please note: A subsidiary of Demant Holdings has been trying to invalidate Ref. (b.) These reviews normally take 3 to 6 months, but ours has been going on for over 2 ½ years. We have a good law firm and we are confident that we will prevail. However, if we don't, Demant could quickly use their same arguments to invalidate your patents in this field, Ref. (d). We think that this may be why they are spending so much time and money to invalidate ours. We are certainly not their competitors.

If you think you may be interested in our technology, please contact us.
Yours truly,

Louis T. Gnecco M.S.E.E., Vice President
Certified Electromagnetic Compatibility Engineer, Cert. # EMC-000544-NE
Licensed Hearing Instrument Specialist: Virginia License # 00719



TAB L

4 INDUSTRY REJECTION LETTERS

Better Hearing, Inc.
112 Elden Street
Herndon, Virginia 20170
USA

Attn: Mr Louis T. Gnecco

Hellerup, 30 August 2002
KDN/aor

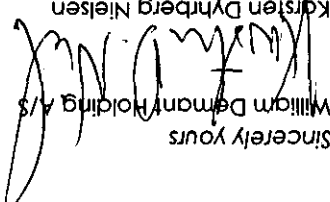
Dear Mr Gnecco

Electromagnetic shielding of hearing aids

Thank you for your letter dtd 15 July 2002.

We have reviewed the patent rights referred to in your letter, and the conclusion is that the companies of Oticon A/S and Bernatton AG, both being subsidiaries of William Demant Holding A/S, are not interested in entering into any agreements concerning the technology referred to in these patents.

We thank you for drawing our attention to this matter.

Sincerely yours
William Demant Holding A/S

Kristian Dyhrberg Nielsen

William Demant Holding A/S
58, Strandvejen
DK-2900 Hellerup
Denmark
Tel.: +45 39 17 71 00
Fax: +45 39 47 89 00
CVR-nr. 71186911
william@demant.dk

William Demant
Holding



Better Hearing, Inc.
112 Elden Street
Herndon, Virginia 20170
USA

Att: Mr. Louis T. Gnecco, Vice President

Widex A/S
Ny Vestergaardsvej 25
DK-3500 Vaerloese, Denmark
Tel.: (+45) 44 35 56 00
Fax: (+45) 44 35 56 01
widex@widex.com
www.widex.com
CVR. No. 1577 1100

August 7, 2002

REGISTERED

Licensing – US patents #5,604,457 and #6,031,923 – Gnecco et al.

Dear Mr. Gnecco,

Thank you for your letter of July 16, 2002 offering licensing of US patents #5,604,457 and #6,031,923.

We have carefully reviewed both patents and are convinced that none of our products are covered by the patent claims. Furthermore, we have no current plans to utilize the claimed technology.

In any event, with the '457 reexamination proceedings still pending at the USPTO we find it premature to discuss licensing.

Yours sincerely,

Søren Westermann,
Director, VP of Research, IP and IT

PHONAK

hearing systems

Switzerland

Louis T. Gnecco
Better Hearing, Inc.
112 Elden Street
Herndon, Virginia 20170
USA

Phonak AG

Laubisrütistrasse 28
8712 Stäfa
Switzerland

Phone +41 1 928 01 01
Fax +41 1 928 07 07

August 21, 2002

Dear Mr. Gnecco,

Your letter to Mr. Pfluger of July 8, 2002, has been forwarded to me. I am the Coordinator of IPR and Knowledge Management within the Phonak group.

Thank you for your offer to license or sell the technology covered by the patents US 5,640,457 and US 6,031,923 to Phonak. Having examined these patents, we have come to the conclusion that we do not need a license to them, at least for the time being as Phonak is using different technology in its current and planned systems.

Please address future communications, if any, directly to me.

Yours sincerely,

Phonak AG



Dr.-Ing. Peter Drtina
Coordinator for IPR & Knowledge
Management

Mr. Louis T. Gnecco M.S.E.E., Vice President
BETTER HEARING, INC.
112 Elden Street
Herndon
Virginia 20170
U.S.A.



August 1st, 2002

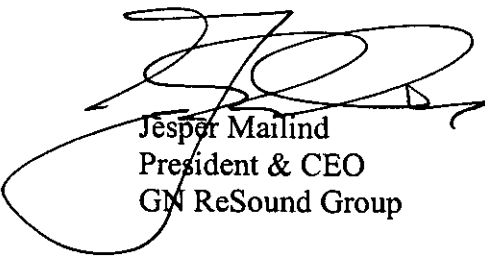
Dear Mr. Gnecco:

Your letter of July 16 (Registry # RA 554 000 458 US) has been passed on to us by Mr. Jørn Kildegaard, President & CEO of GN Great Nordic, who is also Chairman of our Board.

We can inform you that we have reviewed the patents mentioned in your above letter and have reached the conclusion that the technology in question is not of interest to our company at the present moment.

Thank you for allowing us to consider this matter.

Yours sincerely,



Jesper Mailind
President & CEO
GN ReSound Group

GN ReSound as

Markærvej 2A
P.O. Box 224
DK-2630 Taastrup
Denmark
Phone: +45 72 11 11 11
Fax: +45 72 11 11 88
E-mail: gnresound@gnresound.dk